NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NOTICE: GSFC-13-01

National Environmental Policy Act: Origins, Spectral Interpretation, Resource Identification, and Security–Regolith Explorer (OSIRIS-REx) Mission

AGENCY: National Aeronautics and Space Administration

ACTION: Finding of No Significant Impact

SUMMARY: Pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended (42 U. S. C. 4321, *et seq.*), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500-1508), and NASA policy and procedures (14 CFR part 1216, subpart 1216.3), NASA has made a Finding of No Significant Impact (FONSI) with respect to the proposed Origins, Spectral Interpretation, Resource Identification Security – Regolith Explorer (OSIRIS-REx) Mission. NASA is proposing to pursue the OSIRIS-REx mission to explore the asteroid 1999 RQ36 and to return asteroid samples to Earth.

DATE: This Proposed Action may proceed on the date of this FONSI.

ADDRESSES: The Final Environmental Assessment (EA) that serves as the basis for this FONSI can be viewed at http://code250.gsfc.nasa.gov/environmental/osiris-rex.cfm and at the following locations:

(a) Salt Lake City Library, 210 East 400 South, Salt Lake City, UT 84111 (801-524-8200)
(b) Tooele City Library, 128 West Vine Street, Tooele, UT 84074 (435-882-2182)
(c) Goddard Space Flight Center Visitor Center, 8800 Greenbelt Road, Greenbelt, MD 20771 (301-286-8981)

A limited number of the hard copies of the Final EA are available by contacting Ms. Lizabeth Montgomery at the address indicated herein.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

NASA has reviewed the Final EA prepared for the OSIRIS-REx mission and has determined it represents an accurate and adequate analysis of the scope and level of associated environmental impacts. The Final EA is hereby incorporated by reference in this FONSI.

NASA solicited public and agency review and comment on the environmental impacts of the proposed action through a 30-day comment period on the draft EA. Notices were published in the Salt Lake Tribune, Deseret News and in the Tooele Transcript in November 2012. The draft EA was mailed directly to interested parties and was made available on the internet and at local libraries in Utah. Comments received were considered in the preparation of the Final EA.

The EA addresses the potential environmental impacts of the Proposed Action (the OSIRIS-REx mission) and the No Action alternative. Under the Proposed Action NASA would launch the OSIRIS-REx spacecraft from the Cape Canaveral Air Force Station (CCAFS), Florida in September 2016 on an Atlas V class launch vehicle. After traveling for two years the OSIRIS-REx spacecraft would approach the near Earth asteroid designated 1999 RQ36 in 2018. The spacecraft would spend about 30 months (until March 2021) examining the asteroid and collecting surface regolith samples. Upon completion of the exploration, the OSIRIS-REx spacecraft would begin its 2.5 year journey back to Earth for a sample landing in September of 2023 at the Utah Test and Training Range (UTTR), Utah. Only the Sample Return Capsule (SRC) containing the collected samples would land. The unopened SRC would be transported via C130 aircraft to Johnson Space Center (JSC), Texas, for processing at a dedicated curation and research facility.

The launch activities associated with the OSIRIS-REx mission were determined to be within the scope of the *Environmental Assessment for Launch of NASA Routine Payloads* (November 2011) which concluded in a Finding of No Significant Impact for such launches (FONSI - November 22, 2011). The environmental impacts of launching the OSIRIS-REx spacecraft would fall within the range of routine, ongoing, and previously documented impacts that have been determined not to be significant.

The landing and recovery operations for this mission would be similar to those associated with prior NASA sample return missions that also utilized UTTR and would be within the bounds of activities currently being performed at UTTR. Any environmental impacts to resources would be short term and negligible. Safety risks were assessed for both normal and inadvertent reentry and found to be significantly below public safety limits set forth in NASA guidance (NPR 8715.5A).

The 1999 RQ36 asteroid samples are unlikely to pose any risk of contamination of the Earth. NASA has established requirements to prevent back contamination of the Earth from materials returned from small bodies, such as asteroid 1999 RQ36. An "Unrestricted Earth Return" classification establishes that back contamination is unlikely and that the samples are safe to return to Earth. Back contamination is considered unlikely if the asteroid has been exposed to radiation levels sufficient to sterilize any organic material present. Models of the environment on asteroid 1999 RQ36 indicate that sufficient radiation to sterilize any organic material is present on the asteroid. In addition, back contamination is considered unlikely if there has been a history of natural influx of material reaching the Earth. Since 1999 RQ36 is an Earth-crossing asteroid, it is very likely that terrestrial exposure to dust from the asteroid has already occurred and will continue to occur in the future. Based on this information, there is little risk of back contamination of the Earth from 1999 RQ36. Therefore, the OSIRIS-REx mission has been given an "Unrestricted Earth Return" classification.

Curation activities for the OSIRIS-REx asteroid samples would be similar to ongoing curation activities at JSC, impacts of which have been previously addressed in existing environmental documentation. Any impacts associated with the curation, including minor interior modifications to an existing facility, would be negligible.

Under the No Action Alternative the OSIRIS-REx mission would not take place and no impacts associated with the mission would occur.

On the basis of the Final EA, NASA has determined the environmental impacts associated with the proposed action would not individually or cumulatively have a significant impact on the quality of the human environment. Therefore, an environmental impact statement is not required.

C J. S

Christopher J. Scolese
Director
Goddard Space Flight Center

21 March 2013
Date